DATASHEET
FUJITSU ETERNUS DX80 DISK STORAGE SYSTEM

THE DATA SAFE

ETERNUS DX - THE DATA SAFE

ETERNUS DX disk storage systems - the most reliable and secure data safes:
For small and medium-sized businesses, ETERNUS DX60, DX80, and DX90 provide fast and highly available data. For mid-range and enterprise customers who need secure and flexible integration into the data center, Fujitsu offers the ETERNUS DX400 series and ETERNUS DX8000 series. ETERNUS DX disk storage systems use the same software stack and hardware functions across the entire range to allow ease-of-use and greater efficiency for users.

ETERNUS SF - Fujitsu's Storage Management Software - reduces total cost of ownership by simplifying the monitoring and management of ETERNUS DX disk storage systems. Furthermore it helps to achieve business continuity by leveraging the Advanced Copy functions for data backup, using snapshots and clones. Altogether, with ETERNUS SF, storage resources in complex IT environments are optimized.

As one of the world's largest IT services companies, Fujitsu combines many years of experience in complex data centers to offer tailor-made solutions that perfectly fit customers' individual requirements. Moreover, Fujitsu is one of the few global players to provide flexible infrastructures with its Dynamic Infrastructures strategy: server, storage, networking and service solutions - all from one trusted partner.

ETERNUS DX80

Fujitsu ETERNUS DX80 is a new generation of entry level disk storage systems with enterprise class reliability. Easy to install, configure, operate and maintain, they integrate well with host operating systems, multi-vendor servers, network infrastructures and backup solutions.

ETERNUS DX80 disk storage systems flexibly scale to 240 terabytes with 120 drives. Different models can either be attached to hosts via Fibre Channel, iSCSI or SAS connections. ETERNUS DX80 is optionally available for high-speed Fibre Channel transfer rates of up to 8 gigabit per second.

ETERNUS DX80 base units support 12x 3.5” drives per 2U rack shelf. Alternative base units of the FC-attached models can be equipped with 24x 2.5” drives per 2U shelf to reduce power consumption and space requirements. Additionally, the ETERNUS DX80 base units for 2.5” drives can be extended either with expansion shelves for 2.5” drives or with standard shelves for 3.5” drives.
Backup copies are always at hand via the included eight snapshots and clones, which can be optionally upgraded to 1024.

ETERNUS SF Express management software, provided with ETERNUS DX80, simplifies the monitoring, management and copying methods of multiple ETERNUS DX disk storage systems from a central console.

Green IT

Green Policy Innovation

SUPER Green Product
This product has the top-level environmental factor in the comparison with our previous product or product in market.

FEATURES AND BENEFITS

MAIN FEATURES	BENEFITS
QUALITY AND RELIABILITY	
■ Redundant hot swappable RAID controllers, fans and power supplies	■ For highest 99.99% availability
■ Cache Protector uses maintenance-free capacitor technology	■ Protects the RAID controller cache during power outages and returns the array to high performance mode within minutes following restore
■ Redundant Copy rebuilds a disk automatically as soon as the first signs of failure appear	■ Dramatically reduces recovery times and minimizes the risk of permanent data loss during recovery
■ Data Block Guard appends check codes to every data block and verifies them at multiple checkpoints	■ Helps to ensure maximum data integrity on the drives and in cache
■ RAID Migration enables LUNs to be moved dynamically between different RAID groups and disk drives without interrupting operations	■ Supports Information Lifecycle Management with different service levels from frequently accessed data to online backup
■ Mixed SAS, Nearline SAS disk drives and Enterprise-SSD	■ Serves all main performance and capacity requirements
■ Enterprise-class Solid State Drives (Enterprise-SSD)	■ For the most demanding performance requirements
INNOVATION AND FLEXIBILITY	
■ Latest technologies and improved RAID Controller	■ For highest performance
■ Fibre Channel or iSCSI or SAS host connection	■ Flexibly connects to hosts and networks
■ 8 snapshots (standard) upgradeable to 1024	■ For business continuity and data protection
■ Eco-mode spins down idle disk drives	■ Reduces energy consumption and heat dissipation
EASE-OF-USE	
■ Intuitive web interface	■ Easy to install and operate
■ Storage management software ETERNUS SF Express is bundled	■ Simplifies storage monitoring and management
VERSATILITY AND INTEROPERABILITY	
■ Alternative base units of the FC-attached models can be equipped with 2.5 inch drives, extendable with 3.5 inch and 2.5 inch drive enclosures	■ Disk storage tailored to application and space requirements with optimum power consumption and space requirements
■ A wide range of Operating Systems, servers as well as applications is supported	■ Reliable and easy database operation, storage consolidation, clustering, tiered storage, backup-to-disk and many other usage scenarios

QUALITY AND RELIABILITY

ETERNUS DX80 offers non-stop robustness and redundant hot-pluggable components such as power supplies, fans, and RAID controllers.

Different drive sizes and types can be mixed and matched. All the relevant RAID levels (0, 1, 1+0, 5, 5+0 and 6) are available so that data can be protected in a flexible manner to meet reliability and security requirements. Furthermore, the RAID Migration feature can be used to dynamically move data between different RAID groups and drives without interrupting operations. This allows data to be moved to fast SAS disk drives or high-capacity Nearline SAS disk drives according to its access frequency and importance.

With the ever increasing capacities of Nearline SAS disk drives, recovery times when a drive fails are extending. This increases the risk that another drive will fail and the data cannot be recovered. It can take a number of days to rebuild a 2 terabyte disk drive in a RAID 5 configuration. "Redundant Copy" starts the rebuild procedure as soon as the first signs of failure appear. This dramatically minimizes the risk of permanent data loss during the recovery action.

ETERNUS DX80 protects data on the disk drives not only via RAID but also via the Data Block Guard. This function appends a check code to every data block and verifies it at multiple checkpoints. This improves data integrity both on the drives and in the cache. Should data corruption occur, the system can detect and rectify the error to guarantee the consistency of all stored data.

Using Data Encryption, no unauthorized access is possible when drives are removed from the storage system. This feature can be activated if required and is only available in countries where encryption of data is permitted.

ETERNUS DX80 is also equipped with state-of-the-art Cache Protector. Instead of traditional batteries, it uses capacitors to write the contents of the RAID controller cache to flash memory in the event of a power failure. This means lengthy power failures can be "survived". The power generated by the capacitor is sufficient for the data backup. When power supply is restored, the cache can be restored very quickly as capacitors recharge a lot faster than batteries. The capacitors used in ETERNUS DX80 do not need as much maintenance and have a longer lifespan than batteries frequently used in other systems.

INNOVATION AND FLEXIBILITY

With three interface models, ETERNUS DX80 can connect to hosts via Fibre Channel, iSCSI or SAS, using either single or dual controllers with 2GB of each cache. Online upgrades from single to dual controller configurations are possible. With two Fibre Channel controllers, a maximum of 128 hosts can be connected in Storage Area Networks (SAN). In contrast, the iSCSI models enable SAN functionality via the well-known Internet Protocol which requires no investment in new IT infrastructure and training, making it very suitable for small businesses. In comparison, the SAS models directly connect to servers so that very low-priced cluster configurations can be implemented.

With the Advanced Copy functions, a business data volume can be copied to a separate copy volume within the disk storage system, at any point in time. Once the copy is completed, the copy volume can be separated from the business volume. This allows easy backup to a tape device, as using the point in time copy allows normal operations on the business data to continue.

ETERNUS DX80 is equipped with 8 snapshot sessions. Using the Graphical User Interface (GUI) or Command Line Interface (CLI), they enable planning of the required quantity of copy sessions as well as testing of functions. Once a copy license is purchased, snapshots can be extended to 1024 sessions.

ETERNUS DX80 is a leading energy-efficient storage system. In Eco-mode, which uses MAID (Massive Array of Idle Disks) technology, it requires even less energy and produces less heat as disk drives not in use can be shutdown. In backup-to-disk environments, drives used for nightly backup can be spun down during daily operations. This contributes significantly to system and data center efficiency.

EASE-OF-USE

Installation is quite simple. The management software - with its graphical user interface and installation wizard - is designed for easy intuitive operation and comes pre-installed on each system. Day to day operation management of ETERNUS DX80 is very straight forward. Firmware upgrades can also be carried out - usually without any operational interruptions.

With ETERNUS SF Express already bundled for simplified storage system management and maintenance, this same software assists in monitoring multiple ETERNUS DX disk storage systems from the one centralized console. In addition it manages the Advanced Copy functions within the storage system making snapshots and clones an easy task, through one combined management console.

VERSATILITY AND INTEROPERABILITY

At just 2U height and with a capacity of 12 drives in 3.5 inch format, ETERNUS DX80 flexibly scales from 600GB to 240TB. An alternative FC base model is available for up to 24x 2.5 inch drives. With 2.5 inch drives the maximum storage capacity of each system is limited to 36 Terabytes.

ETERNUS DX80 is suitable for a broad range of uses, including high-availability solutions. Examples are: Microsoft Cluster Server, x10sure or ServerView Resource Coordinator VE, storage consolidation, critical company applications, such as databases or e-mail, archiving and backup-to-disk. ETERNUS DX80 is also ideal for use in the virtual server environments of VMware vSphere, Citrix and Microsoft Hyper-V.

TECHNICAL DETAILS

GENERAL SPECIFICATION			3.5" BASE MODEL		2.5" BASE MODEL	
			SINGLE CONTROLLER	DUAL CONTROLLER	SINGLE CONTROLLER	DUAL CONTROLLER
CPU Frequency			1.2 GHz			
RAID Levels			0, 1, 1+0, 5, 5+0, 6			
Host Interfaces			Fibre Channel (8/4/2Gbit/s) Fibre Channel (4/2/1Gbit/s) iSCSI (1Gbit/s) SAS (3Gbit/s)		Fibre Channel (8/4/2Gbit/s) Fibre Channel (4/2/1Gbit/s)	
Number of controllers			1	2	1	2
Number of host interfaces			2	4	2	4
Number of hosts		**Fibre Channel**	Max. 64	Max. 128	Max. 64	Max. 128
		iSCSI	Max. 64	Max. 128	n/a	n/a
		SAS	Max. 2	Max. 4	n/a	n/a
Cache memory capacity			2 GB	4 GB	2 GB	4 GB
Number of drive enclosures			Max. 9 (3.5" only)		Max. 9 (3.5") / Max. 4 (2.5")	
Number of drives			2 - 120			
Storage capacity		**Physical capacity**	Max. 240.0 TB		Max. 223.2 TB	
		Logical capacity	Max. 176.1 TB		Max. 163.7 TB	
Drives	**3.5-inch**	**SAS disk drives**	600GB/450GB/300GB (15,000rpm)			
		Nearline SAS disk drives	2TB/1TB/750GB (7,200rpm)			
		SSD (Solid State Drives)	200GB/100GB			
- Note			3.5" drives are available only with 3.5" drive enclosures for 2.5" base models			
	2.5-inch	**SAS disk drives**	n/a		600GB/450GB/300GB/146GB (10,000rpm)	
		SSD (Solid State Drives)	n/a		200GB/100GB	
Drive interface			Serial Attached SCSI (3Gbit/s)			
Redundancies		**RAID Controller**	No	Yes	No	Yes
		Fan	Yes	Yes	Yes	Yes
		Power Supply	Yes	Yes	Yes	Yes
Number of Snapshots		**Standard (built-in)**	8			
		Maximum (option)	1024			
- Note			Snap/Clone License must be purchased to maximize the number of Snapshots			
Remote Copy feature			No			

INSTALLATION SPECIFICATION		3.5" BASE MODEL	2.5" BASE MODEL
Dimensions (W x D x H)	**Standard**	483 x 650 x 88mm (19 x 25.5 x 3.5 inch) [2U]	
	Maximum	483 x 650 x 889mm (19 x 25.5 x 35 inch) [20U]	483 x 650 x 444mm (19 x 25.5 x 17.5 inch) [10U]
Service Area	**Front**	800 mm (31.5 inch) or more	
	Rear	800 mm (31.5 inch) or more	
Maximum Weight		350 kg (35 kg per single enclosure) 772 lb (77.2 lb per single enclosure)	175 kg (35 kg per single enclosure) 386 lb (77.2 lb per single enclosure)
Power	**Voltage**	AC 100 – 120 V / AC 200 – 240 V	
	Phase	Single	
	Frequency	50 Hz / 60 Hz	
Maximum Power Consumption	**AC 100 - 120V**	3750 W (3770 VA)	2160 W (2180 VA)
	AC 200 - 240V	3740 W (3780 VA)	2100 W (2170 VA)
Maximum Heat Generation	**AC 100 - 120V**	13500 kJ/h (12796 BTU/h)	7776 kJ/h (7370 BTU/h)
	AC 200 - 240V	13464 kJ/h (12762 BTU/h)	7560 kJ/h (7165 BTU/h)
- Note		Max. Power Consumption and Heat Generation for 2.5" base models apply for configurations with only 2.5" drives	
Environmental Conditions	**Temperature (Operating)**	5 – 40°C (41 – 104°F)	
	Humidity (Operating)	20 – 80% RH	
Altitude		3000 m (9842 ft.)	

SUPPORTED RAID LEVELS	
RAID 0	Data striping on several disk drives
RAID 1	Mirrored disk drives
RAID 1+0	Data mirroring, then striping of the data over several disk drives
RAID 5	Striping with distributed parity
RAID 5+0	RAID 5 arrays, striped again over several drives
RAID 6	Striping with distributed double parity

MANAGEMENT	
Interfaces	Ethernet (1000 Base-T / 100 Base-TX / 10 Base-T)
Supported protocols	SNMP (version1), SMI-S 1.2
Administration	Web-Environment, CLI (Command Line Interface), ETERNUS SF Express

SUPPORTED OS FOR ETERNUS SF EXPRESS	
Operation Management Server	Microsoft® Windows Server® 2008 R2 Standard (64-bit) Microsoft® Windows Server® 2008 R2 Enterprise (64-bit) Microsoft® Windows Server® 2008 R2 Datacenter (64-bit) Microsoft® Windows Server® 2008 Standard without Hyper-VTM (32-bit)(64-bit) Microsoft® Windows Server® 2008 Enterprise without Hyper-VTM (32-bit)(64-bit) Microsoft® Windows Server® 2008 Datacenter without Hyper-VTM (32-bit)(64-bit) Microsoft® Windows Server® 2008 Standard (32-bit)(64-bit) Microsoft® Windows Server® 2008 Enterprise (32-bit)(64-bit) Microsoft® Windows Server® 2008 Datacenter (32-bit)(64-bit) Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2003, Standard Edition Microsoft® Windows Server® 2003, Enterprise Edition Microsoft® Windows Server® 2003, Standard x64 Edition Microsoft® Windows Server® 2003, Enterprise x64 Edition

NOISE EMISSION	3.5" BASE MODEL	2.5" BASE MODEL
Sound Power Level (LWAd)	5.9 B	6.0 B
Sound Pressure Level (LpAm)	42.0 dB(A)	43.5 dB(A)
- Notes	measured with single enclosure according to ISO7779 and declared according to ISO9296	

SUPPORTED CONFIGURATIONS

A wide range of host operating systems, servers as well as applications is supported.

For a detailed support matrix check: http://www.fujitsu.com/global/services/computing/storage/eternus/products/diskstorage/dx-entry/supported-device/

COMPLIANCE WITH STANDARDS	
Product safety	UL60950-1, CSA-C22.2 No. 60950-1, EN60950-1, IEC60950-1, GOST-R
Electromagnetic Compatibility	CNS13438(C6357) Class A, FCC CFR47 part 15 Class A, ICES-003 Class A, EN55022 Class A, VCCI Class A, AS/NZS CISPR22 Class A
Electromagnetic Immunity	EN55024
CE certification	Electromagnetic Compatibility Directive 2004/108/EC Low Voltage Directive 2006/95/EC
Environmental compliance	RoHS-compliant (Restriction of hazardous substances) WEEE-compliant (Waste electrical and electronic equipment)
- Notes	There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request.
Compliance link	Compliance link: https://sp.ts.fujitsu.com/sites/certificates/default.aspx

FUJITSU PLATFORM SOLUTIONS

In addition to Fujitsu ETERNUS DX80, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures
With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure-as-a-Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing Products
www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- SPARC Enterprise: UNIX server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system

Software
www.fujitsu.com/software/
- Interstage: Application infrastructure software
- Systemwalker: System management software

MORE INFORMATION

Learn more about Fujitsu ETERNUS DX80, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.
www.fujitsu.com/eternus/

FUJITSU GREEN POLICY INNOVATION

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at:
www.fujitsu.com/global/about/environment/

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